



Norman H. Bangarter  
Governor

Dee C. Hansen  
Executive Director

Dianne R. Nielson, Ph.D.  
Division Director

# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340

August 17, 1988

TO: Board of Oil, Gas and Mining

THRU: Kenneth E. May, Associate Director, Mining *KEM*

THRU: Lowell P. Braxton, Administrator *LPB*

FROM: D. Wayne Hedberg, Senior Reclamation Specialist/Hydrologist *DWH*

RE: Request for Board Concurrence, Amount and Form of  
Reclamation Surety, Kennecott Explorations (Australia)  
Ltd., Barney's Canyon Project, M/035/009, Salt Lake County,  
Utah

Attached for your information is a copy of an Executive Summary and the Reclamation Surety Estimate for Kennecott's Barney's Canyon Project located in Salt Lake County, Utah. Kennecott is presently acquiring a Surety Bond (MR Form 5, example attached) in the amount of \$2,700,000 to cover decommissioning costs and reclamation for the proposed open pit gold mining and cyanide heap leaching project. The bond will be available for your review during this month's Board hearing.

Tentative approval was issued on June 22, 1988. A public notice was forwarded to the appropriate news services, and the thirty (30) day public comment period expired on July 30, 1988. No written public comments were received during the 30 day comment period. A copy of the abbreviated public notice is attached for your reference. Following the Board's acceptance of the reclamation surety, the Division will be prepared to forward a final approval notice to Kennecott for this project.

DWH/jb  
Attachments  
2/4

## EXECUTIVE SUMMARY

Mine Name: Barney's Canyon Project I.D. No.: M/035/009  
Operator: Kennecott Explorations County: Salt Lake  
(Australia) Ltd. New/Existing: New  
1515 Mineral Square Mineral Ownership: Private  
Salt Lake City UT 84112 Surface Ownership: Private  
Telephone: (801) 322-8333 Lease No.(s): N/A  
Contact Person: Gerald W. Schurtz Permit Term: Life of Mine  
Life of Mine: 8 years

Legal Description: Sections 31 & 32, T.2S., R.2W., Sec.31, T.2S., R.3W.,  
Sec's. 3-6, T.3S., R.2W., SLBM

Mineral(s) to be Mined: Gold  
Mining Methods: Open Pit Mining - Cyanide Heap Leach Operation  
Acres to be Disturbed: 707  
Present Land Use: Wildlife Habitat and Limited Livestock Grazing  
Postmining Land Use: Livestock Grazing and Wildlife Habitat  
Variances from Reclamation Standards (Rule M-10) Granted: M-10(3), M-10(4),  
M-10(5), M-10(8), M-10(12), M-10(13), M-10(14)

### Soils and Geology:

Soil Description: All of the soils are very gravelly and/or cobbly. Textures  
range from loams to silt or clay loams to silty clays, organic matter above 1%.  
Soil types: Bradshaw-Agassiz, Fitzgerald, Gappmayer-Wallsburg, Copperton and  
Harker-Dry Creek.

pH: 5.78 - 7.73

Special Handling Problems: Phosphorus is deficient, moderate to high erosion  
potential, some shallow soils on steep terrain cannot be safely removed and  
stockpiled.

Geology Description: East edge of Paleozoic core of Oquirrh Mountains.  
Barney's Canyon and Mel-Co pit sites underlain by Permian Kirkman-Diamond Creek  
and Park City Formations. Project processing facilities sited on Quaternary  
alluvial sediments of the Pleistocene Harkers Formation which unconformably  
overlie Tertiary buried volcanic rocks. Volcanics chiefly comprised of latitic  
flows, breccias and agglomerates.

### Hydrology:

Groundwater Description: Measurements from onsite wells indicate hydraulic  
conductivity ranges from  $6 \times 10^{-3}$  ft/day to  $1 \times 10^{-4}$  ft/day. Depth to the  
confined bedrock aquifer in the project processing facilities area is  
approximately 165 ft.

Surface Water Description: Barney's Creek is intermittent to perennial  
(2 mi. reach), is adjacent to the proposed process facilities area and drains  
into Jordan River. Other small, intermittent and ephemeral drainages in the  
project area of minimal flow. One spring is located in general area  
(Bancroft Spring).

Water Monitoring Plan: To be determined by the Department of State Health,  
Bureau of Water Pollution Control.

Ecology:

Vegetation Type(s); Dominant Species: North slope/Conifers-Shrubs Community,  
Riparian Community, Oak Woodland/Mountain Brush Community, Shrub Oak/Big Sage-  
brush Community and Big Sagebrush Community.

Percent Surrounding Vegetative Cover: Cover varies depending on community type  
and ranges from 50 - 70%.

Wildlife Concerns: Some temporary losses of deer and elk winter range until  
ultimate reclamation and revegetation occurs.

Surface Facilities: Barney's and Mel-Co Mine Pits and associated mine dumps,  
plant site and associated processing facilities, leach pads and solution ponds,  
access roads.

Mining and Reclamation Plan Summary: See attached memo

Surety:

Amount: \$2,700,000 (1995 dollars)

Form: Surety Bond

Renewable Term: Life of Mine (8 years)



Norman H. Bangerter

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Division Director

# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

355 West North Temple

3 Triad Center, Suite 350

Salt Lake City, Utah 84180-1203

801-538-5340

July 29, 1988

Mr. Charlie Dietz  
Bureau of Water Pollution Control  
288 North 1460 West  
Salt Lake City, Utah 84116

Dear Mr. Dietz:

Re: Reclamation Bonding, Barneys Canyon Project, M/035/009,  
Salt Lake County, Utah

Enclosed is a copy of the portions of the Barneys Canyon reclamation cost estimate that pertain to decommissioning of leach heaps. The Division believes that \$125,000 is a good initial approximation and we will recommend to the Board that a reclamation bond be posted by BP Minerals in the amount of \$2,700,000. This total was determined by adding a ten percent contingency to the estimate of \$2,052,200 and then inflating the total by 2.3 percent per year for the eight year project life.

One condition of final approval will be that Kennecott Explorations (Australia), Ltd. must provide the Division a detailed cost breakdown of decommissioning within one year after start up. This cost estimate will be based on the decommissioning plan approved by the Bureau of Water Pollution Control. Our Division will coordinate the review of this detailed estimate with the staff at Water Pollution Control. If, at that time, the agreed upon decommissioning estimate is significantly in excess of \$125,000, the Division will require Kennecott Explorations to add the excess amount to the reclamation bond.

Page 2  
Mr. Charlie Dietz  
July 29, 1988

I hope that this approach is satisfactory to the Bureau of Water Pollution Control. Please call me or Wayne Hedberg if you require additional information.

Sincerely,

A handwritten signature in dark ink, appearing to read "Frank J. Filas", with a stylized, cursive flourish at the end.

Frank J. Filas  
Reclamation Engineer

jb

Enclosure

cc: L. Braxton

W. Hedberg

Kent Miner, Salt Lake County Health Department

Gerald Schurtz, BP Minerals

Robert Bayer, JBR Consultants.

8/15

## 7.0 Reclamation Cost Estimate

Costs for implementation of the proposed reclamation plan have been prepared for each component on a unit cost basis. This method requires three inputs, quantities of materials, production rates, and equipment unit costs. Quantities were determined from the reclamation plan presented above. Production rates were calculated from procedures recommended in the Cat Performance Handbook (1987). Equipment unit costs were derived by averaging hourly rate estimates obtained from three local construction contractors.

Appendix H-1 provides spreadsheets of the reclamation components and associated costs for each area of the property receiving treatment. All assumptions, references, and ancillary calculations used in preparing these spreadsheets are found in Appendix H-2. Table 7.0.1 summarizes the costs for each component. The total cost of reclamation (in 1988 dollars) is estimated to be \$2,052,200.

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Table 7.0.1 Reclamation Cost Summary

<u>Component</u>	<u>Cost</u>
Decommissioning of Leach Heaps	125,000
Topsoiling	765,700
Pit Safety Berms	3,100
Fill Slope Regrading	186,700
Rip Topsoiled Surfaces	14,600
Leach Pad Regrading	29,400
Fold Pond & Leach Pad Liners	3,500
Pond Sludge Removal	50,000

Table 7.0.1 Reclamation Cost Summary (Continued)

<u>Component</u>	<u>Cost</u>
Runoff Control	282,300
Revegetation	481,600
Equipment Mob/demob	<u>12,600</u>
Subtotal	\$1,954,500
Supervision (5% of subtotal)	<u>97,700</u>
Total	\$2,052,200

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MR FORM 5

\* E XAMPLE OF  
BOND FORM TO  
BE SUBMITTED  
BY KENNECOTT

(August 1985)  
(Noncoal)

Bond Number \_\_\_\_\_  
Permit Number \_\_\_\_\_

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
(801) 538-5340

THE MINED LANDS RECLAMATION ACT

BOND  
\*\*\*\*\*

The undersigned \_\_\_\_\_  
as principal, and \_\_\_\_\_ as  
surety, hereby jointly and severally bind ourselves, our heirs, administrators,  
executors, successors and assigns unto the State of Utah, Division of Oil, Gas  
and Mining in the penal sum of \_\_\_\_\_  
dollars (\$ \_\_\_\_\_).

The principal estimated in the Mining and Reclamation Plan filed with the  
Division of Oil, Gas and Mining on the \_\_\_\_\_ day of \_\_\_\_\_  
, 19 \_\_\_\_\_, that \_\_\_\_\_ acres of land will be disturbed  
by this mining operation in the State of Utah. A description of the disturbed  
land is attached hereto as Exhibit "A."

When the Division has determined that the principal has satisfactorily  
reclaimed the above-mentioned lands affected by mining in accordance with the  
approved Mining and Reclamation Plan and has faithfully performed all  
requirements of the Mined Land Reclamation Act, and complied with the Rules  
and Regulations adopted in accordance therewith, then this obligation shall be  
void; otherwise it shall remain in full force and effect until the reclamation  
is completed as outlined in the approved Mining and Reclamation Plan.

If the approved plan provides for reclamation of the land affected on a  
piecemeal or cyclic basis, and the land is reclaimed in accordance with such  
plan, then this bond may be reduced periodically.

In the converse, if the plan provides for a gradual increase in the area  
of the land affected or increased reclamation work, then this bond may  
accordingly be increased with the written approval of the surety company.

The Division shall only accept the bond of a surety company if the bond is  
noncancellable by the surety at any time for any reason including, but not  
limited to nonpayment of premium or bankruptcy of the permittee during the  
period of liability.

NOTE: Where one signs by virtue of Power of Attorney for a surety company, such Power of Attorney must be filed with this bond. If the principal is a corporation, the bond shall be executed by its duly authorized officer.

Dated this \_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

State of Utah  
Board of Oil, Gas and Mining

\_\_\_\_\_  
Gregory P. Williams, Chairman

\_\_\_\_\_  
Principal (Company)

By \_\_\_\_\_  
Company Officer - Position

Date: \_\_\_\_\_

\_\_\_\_\_  
Surety (Company)

By \_\_\_\_\_  
Surety Company Officer - Position

DATE: \_\_\_\_\_

APPROVED AS TO FORM:

By \_\_\_\_\_  
Assistant Attorney General

AFFIDAVIT OF QUALIFICATION

\_\_\_\_\_, being first duly sworn, on oath deposes and says that he/she is the (officer or agent) \_\_\_\_\_ of said Surety Company, and that he/she is duly authorized to execute and deliver the foregoing obligations; that said Surety Company is authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations.

(Signed) \_\_\_\_\_

Surety Company Officer - Position

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires:

\_\_\_\_\_, 19\_\_\_\_.



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter  
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Dianne R. Nielson, Ph.D.  
Division Director

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340

June 22, 1988

Mr. Gerald Schurtz  
Manager Environmental Engineering  
Kennecott Explorations (Australia) Ltd.  
P.O. Box 11248  
Salt Lake City, Utah 84147

Dear Mr. Schurtz:

Re: Tentative Approval, Notice of Intention to Commence Large Mining Operations, Barneys Canyon Project, M/035/009, Salt Lake County, Utah

The Division has completed its review of your June 10, 1988 resubmittal for the above referenced mining operation. The revised mine and reclamation plan for the Barneys Canyon Project is hereby tentatively approved. The Division is now ready to begin finalization of the permit application and will forward a Notice of Tentative Approval to the surface and minerals owners and to the local newspaper agency for publishing. Upon publication, a 30-day public comment period follows.

The Division will defer to the Department of Health's Bureau of Water Pollution Control for the final design requirements governing: (a) the heap leach pads and solution ponds, (b) the pond and leach pad liners and leak detection systems, (c) spill containment, recovery and neutralization plans for any unplanned loss of cyanide-bearing solutions, (d) the surface and ground water monitoring plans (during operations and postmining), and (e) any mitigation requirements for unexpected contingencies.

The Division cannot consider issuance of final approval for this project until all of the following conditions have been met:

1. No adverse public comments are received which may require a Board hearing for resolution.
2. The Division receives the reclamation surety from the operator, and the Board of Oil, Gas, and Mining concurs with the amount and form of the surety.
3. All plan updates and revisions must be completed and submitted to the Division. The changes must be formatted to allow direct insertion as replacement pages into the original Notice of Intention to Commence Large Mining Operations (NOI).

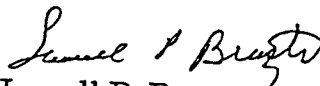
Page 2  
Mr. Gerald W. Schurtz  
M/035/009  
June 21, 1988

4. No construction of the specific facilities to be approved by State Health, will be allowed to commence until the designs have been approved by State Health and a construction permit has been issued.

The Division will require copies of the final approved design plans (as submitted to the Bureau of Water Pollution Control) and the construction permit prior to actual field construction. Where possible, all approved final design plans and text should be formatted to allow direct insertion into the original NOI.

Please contact me or D. Wayne Hedberg should you have any further questions concerning this document or the pending final approval. Thank you for your continued cooperation in completing this permitting activity.

Sincerely,



Lowell P. Braxton  
Administrator  
Mineral Resource Development  
and Reclamation Program

DWH/clj

cc: Bob Bayer, JBR Consultants  
Greg Boyce, Utah Copper  
Don Osler, State BWPC  
Bob Morgan, State H2O Rts.  
Ken May  
Frank Filas  
Holland Shepherd

8946R/53-54



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# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340

June 22, 1988

Newspaper Agency Corporation  
Legal Advertising  
157 Regent Street  
Salt Lake City, Utah 84110

Gentlemen:

Re: Notice of Tentative Approval - M/035/009

Attached is a Notice of Tentative Approval from the Division of Oil, Gas and Mining, Department of Natural Resources, State of Utah.

It is requested that this notice be published ONCE ONLY, as soon as possible, but not later than the 28th day of June, 1988. In the event that said notice cannot be published by this date, please notify me immediately by call 538-5340.

Upon completion of this request, please send proof of publication and a statement of cost to the Division of Oil, Gas and Mining, 355 West North Temple, 3 Triad Center, Suite 350, Salt Lake City, Utah 84180-1203.

Sincerely,

Claudia L. Jones  
Central Files Technician

clj  
Attachment  
8946R/57

BEFORE THE BOARD OF OIL, GAS AND MINING  
DEPARTMENT OF NATURAL RESOURCES  
STATE OF UTAH

---ooOoo---

IN THE MATTER OF TENTATIVE	:	NOTICE OF TENTATIVE
APPROVAL OF THE MINING AND		APPROVAL
RECLAMATION PLAN SUBMITTED :		NO. M/035/009
BY KENNECOTT EXPLORATION		
(AUSTRALIA) LTD., SALT LAKE	:	
COUNTY, UTAH		

---ooOoo---

THE STATE OF UTAH TO ALL OPERATORS, TAKERS OF PRODUCTION, MINERAL AND ROYALTY OWNERS, AND PARTICULARLY ALL PERSONS INTERESTED IN SECTIONS 31, 32, TOWNSHIP 2 SOUTH, RANGE 2 WEST, SECTION 31, TOWNSHIP 2 SOUTH, RANGE 3 WEST, SECTIONS 3, 4, 5, AND 6, TOWNSHIP 3 SOUTH, RANGE 2 WEST, AND SECTIONS 1, 2, 3, AND 11, TOWNSHIP 3 SOUTH, RANGE 3 WEST, SLBM, SALT LAKE COUNTY, UTAH.

Notice is hereby given that tentative approval was given by the Division of Oil, Gas and Mining, on June 21, 1988, to Kennecott Exploration (Australia) Ltd., subsidiary of BP Minerals America, Inc., to commence open pit mining and gold heap leach operations on lands as follows:

Main Access Road - Township 2 South, Range 2 West, Sections 31 and 32, Township 3 South, Range 2 West, Sections 3, 4, 5 and 6.

Plant Site and Barneys Mine Pit and Dump - Township 2 South, Range 3 West, Section 36, Township 3 South, Range 3 West, Section 1.

Mel-Co Mine Pit and Dump and Access Road - Township 3 South, Range 3 West, Sections 1, 2, 3 and 11, SLBM, Salt Lake County, Utah.

The name of the mining operation is the Barneys Canyon Project, and the person representing the company is Gerald W. Schurtz, Manager Environmental Affairs, P.O. Box 11248, Salt Lake City, Utah 84147, Phone (801) 322-8333.

Kennecott Exploration (Australia) Ltd. has fulfilled obligations under the Utah Mined Land Reclamation Act of 1975 (Section 40-8, UCA, 1953, as amended) with specific reference to Section 40-8-13 and will employ the following mining and reclamation techniques on approximately 550 acres of privately owned land.

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During Operations:

1. The principal project components will be the Barneys and Mel-Co open pit mines and related mine waste dumps and a processing plant. The processing plant will consist of an ore crushing and agglomerating plant, a number of heap leach cells, a leachate processing plant and refinery, and offices and shops.

2. Approximately <sup>825,668</sup>~~670,000~~ cubic yards of topsoil will be salvaged and stockpiled for reclamation of the disturbed areas.
3. All heap leach pads and solution ponds will be double lined and equipped with leak detection monitoring systems.
4. Mining is expected to commence in 1988 and continue through 1997. The heap leaches will be operated for approximately one year after mining has ceased.

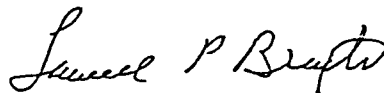
Following Operations:

1. The leach pads and ponds will be decommissioned, graded, topsoiled, and revegetated.
2. The pit highwalls will not be reclaimed.
3. The primary sedimentation pond will be left for livestock and wildlife watering.
4. The majority of the remaining disturbed areas will be graded, topsoiled, and revegetated.
5. The postmining landuse will consist of livestock grazing and wildlife habitat.

Any person or agency aggrieved by this tentative decision is hereby requested to submit written protest within thirty (30) days of the date of publication to the Division of Oil, Gas and Mining, 355 West North Temple, 3 Triad Center, Suite 350, Salt Lake City, Utah 84180-1203, setting forth factual reasons for his or her complaint, and thereafter, at a time and place to be established, appear before the Board of Oil, Gas and Mining to show cause, if any, why this mine plan should not be approved.

DATED this 22nd day of June 1988.

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING



Lowell P. Braxton  
Administrator  
Mineral Resource Development  
and Reclamation Program

A copy of the Notice of Tentative Approval was also sent to:

Calvin J. Spratling  
Star Route, Box 400  
Pendleton, Oregon 87801

William Max Spratling  
Deeth, Nevada 89823

Copperton Improvement District  
208 South 400 East  
Copperton, Utah 84006

Howard H. Hayes, Jr., et. al.  
2830 East St. Mary's Way  
Salt Lake City, Utah 84108

Evelyn P. Boyce  
1200 East Charlton Avenue  
Salt Lake City, Utah 84106

Marjorie N. Sweet  
3077 South 5000 West  
West Valley, Utah 84120

Lois P. Connell  
1200 East Charlton Avenue  
Salt Lake City, Utah 84106

State of Utah  
Division of State Lands and Forestry  
3 Triad Center, Suite 400  
Salt Lake City, Utah 84180-1204

Barrick Resources, Inc.  
P.O. Box 838  
Tooele, Utah 84074

Royal Minerals, Inc.  
150 South 600 East, Suite 5D  
Salt Lake City, Utah 84102

8946R/58

# BARNEYS CANYON PROJECT

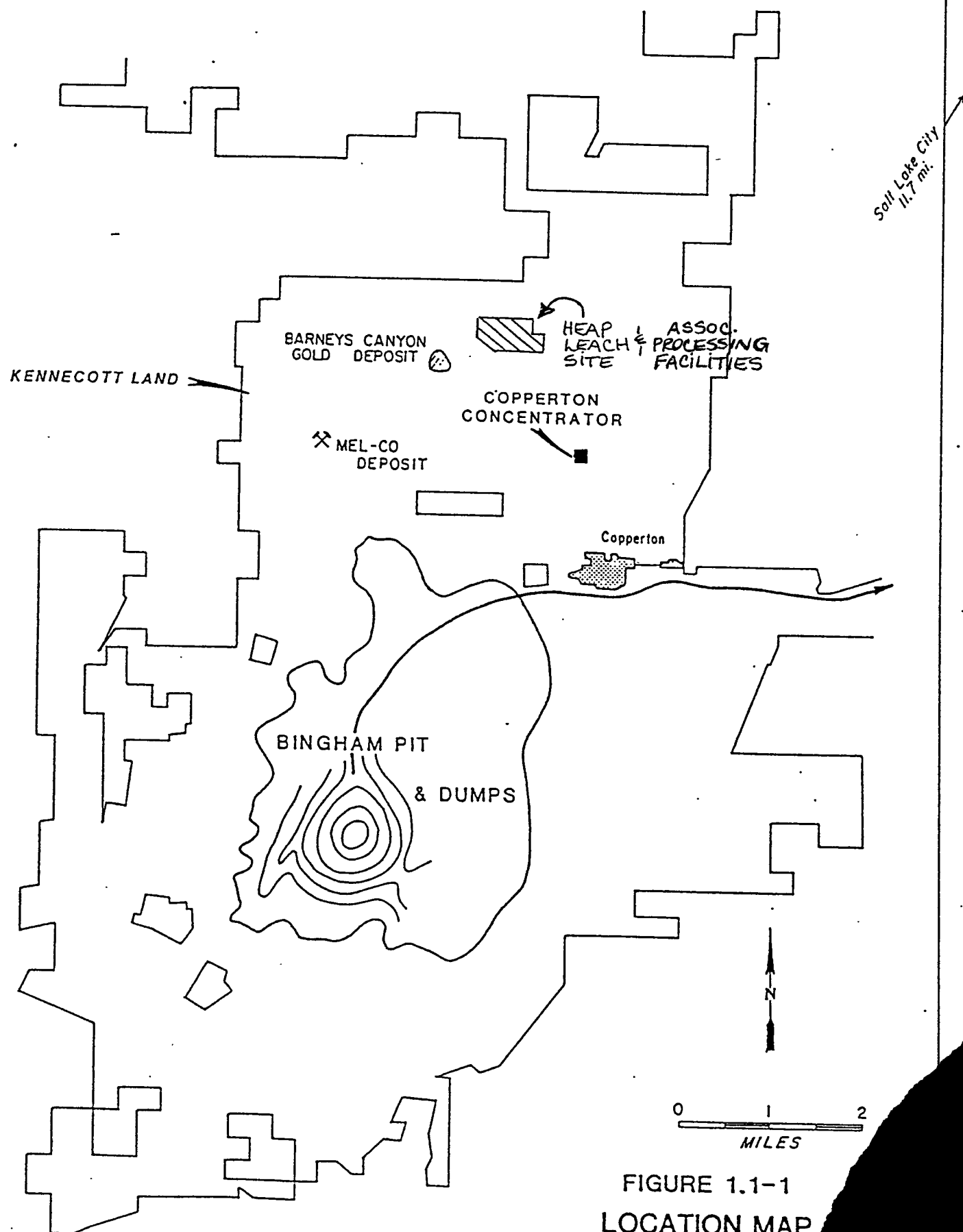


FIGURE 1.1-1  
LOCATION MAP